



<b>SUBSTITUTE FOR FORM IPC/SB/INVENT &amp; TRADEMARK</b>			<b>ATTY DOCKET NO: BOCK=9</b>		<b>SERIAL NO:</b> US 10/574,084	
<b>INFORMATION DISCLOSURE STATEMENT LIST OF DOCUMENTS CITED BY APPLICANT</b>			<b>FIRST INVENTOR: Elisabeth BOCK, et al.</b>			
			<b>FILING DATE: March 30, 2006</b>			
			<b>EXAMINER: S.Noakes</b>		<b>ART UNIT: 1656</b>	
<b>FOREIGN PATENT DOCUMENTS (include at least document number, publication date and country)</b>						
<b>EXAM. INITIAL</b>	<b>ID</b>	<b>COUNTRY CODE &amp; DOCUMENT NUMBER</b>	<b>PUBLICATION DATE MM-DD-YYYY</b>	<b>PATENTEE OR APPLICATION</b>	<b>Relevant Passage(s)</b>	<b>T*</b>
/S.M.N./	AA	WO 00/18801	April 6, 2000	RØNN, L.C.B., et al.		E
<b>OTHER DOCUMENTS (include AUTHOR, title, name of publication, volume, pages &amp; date of publication) Please list in alphabetical order.</b>						
/S.M.N./	AB	Atkins, A.R., Osborne, M.J., Lashuel, H.A., Edelman, G.M., Wright, P.E., Cunningham, B.A., and Dyson, H.J. (1999). "Association between the first two immunoglobulin-like domains of the neural cell adhesion molecule N-CAM". <i>FEBS Lett.</i> 451, 162-168.				
	AC	Atkins, A.R, Chung, J., Deechongkit, S., Little, E.B., Edelman, G.M., Wright, P.E., Cunningham, B.A., and Dyson, H.J. (2001). "Solution structure of the third immunoglobulin domain of the neural cell adhesion molecule N-CAM: can solution studies define the mechanism of homophilic binding?" <i>J. Mol. Biol.</i> 311, 161-172.				
	AD	Becker, J.W., Erickson, H.P., Hoffman, S., Cunningham, B.A., and Edelman, G.M. (1989). "Topology of cell adhesion molecules". <i>Proc. Natl. Acad. Sci. USA</i> 86, 1088-1092.				
	AE	Berezin, V., Bock, E., and Poulsen, F.M. (2000). "The neural cell adhesion molecule". <i>Curr. Opin. Drug Discovery Dev.</i> 3, 605-609.				
	AF	Bork, P., Downing, A.K., Kieffer, B., and Campbell, I.D. (1996). "Structure and distribution of modules in extracellular proteins". <i>Q. Rev. Biophys.</i> 29, 119-167.				
	AG	Briehner, W.M., Yap, A.S., and Gumbiner, B.M. (1996). Lateral dimerization is required for the homophilic binding activity of C-cadherin. <i>J Cell Biol.</i> 135, 487-496.				
	AH	Brünger, A.T., Adams, P.A., Clore, G.M., DeLano, W.L., Gros, P., Grosse-Kunstleve, R.W., Jiang, J-S., Kuszewski, J., Nilges, M., Pannu, N.S., Read, R.J., Rice, L.M., Simonson, T., and Warren, G.L. (1998). "Crystallography & NMR system: A new software suite for macromolecular structure determination". <i>Acta Cryst. D</i> 54, 905-921				
	AI	Casasnovas, J.M., Stehle, T., Liu, J.H., Wang, J.H., and Springer, T.A. (1998). "A dimeric crystal structure for the N-terminal two domains of intercellular adhesion molecule-1". <i>Proc. Natl. Acad. Sci. USA.</i> 95, 4134-4139.				
↓	AJ	Chothia, C., and Jones, E.Y. (1997). "The molecular structure of cell adhesion molecules". <i>Annu. Rev. Biochem.</i> 66, 823-862.				
<b>EXAMINER</b> /Suzanne M. Noakes/			<b>DATE CONSIDERED</b> 07/22/2009			

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/S.M.N./	AK	Cole, G.J., and Akeson, R. (1989). "Identification of a heparin binding domain of the neural cell adhesion molecule N-CAM using synthetic peptides". <i>Neuron</i> 2, 1157-1165.	
	AL	Collaborative Computational Project, number 4. (1994). "The CCP4 Suite: Programs for Protein Crystallography". <i>Acta Cryst. D50</i> , 760-763.	
	AM	Covault, J., and Sanes, J.R. (1985). "Neural cell adhesion molecule (NCAM) accumulates in denervated and paralyzed skeletal muscles". <i>Proc. Natl. Acad. Sci. USA</i> 82, 4544-4548.	
	AN	Conte, L.L., Chothia, C., and Janin, J. (1999). "The atomic structure of protein-protein recognition sites". <i>J. Mol. Biol.</i> 285, 2177-98.	
	AO	Cremer, H., Lange, R., Christoph, A., Plomann, M., Vopper, G., Roes, J., Brown, R., Baldwin, S., Kraemer, P., Scheff, S., Barthels, D., Rajewsky, K., and Wille, W. (1994). "Inactivation of the N-CAM gene in mice results in size reduction of the olfactory bulb and deficits in spatial learning". <i>Nature</i> 367, 455-459.	
	AP	Cunningham, B.A., Hemperly, J.J., Murray, B.A., Prediger, E.A., Brackenbury, R., and Edelman, G.M. (1987). "Neural cell adhesion molecule: Structure, immunoglobulin-like domains, cell surface modulation, and alternative RNA splicing". <i>Science</i> 236, 799-806.	
	AQ	Drejer J. and Schousboe A. (1989) "Selection of a pure cerebellar granule cell culture by kainate treatment". <i>Neurochem Res.</i> 14:751-4	
	AR	Edelman, G.M., and Crossin, K.L. (1991). "Cell adhesion molecules: implications for a molecular histology". <i>Annu. Rev. Biochem.</i> 60, 155-190.	
	AS	Eksterowicz JE, Evensen E, Lemmen C, Brady GP, Lancot JK, Bradley EK, Saiah E, Robinson LA, Grootenhuis PD, Blaney JM. (2002) "Coupling structure-based design with combinatorial chemistry: application of active site derived pharmacophores with informative library design". <i>J Mol Graph Model.</i> 20, 469-77.	
	AT	Flocco, M.M., and Mowbray, S.L. (1994). "Planar stacking interactions of arginine and aromatic side-chains in proteins". <i>J. Mol. Biol.</i> 235, 709-717.	
	AU	Freigang, J., Proba, K., Leder, L., Diederichs, K., Sonderegger, P., and Welte, W. (2000). "The crystal structure of the ligand binding module of axonin-1/TAG-1 suggests a zipper mechanism for neural cell adhesion". <i>Cell</i> 101, 425-433.	
↓	AV	Gunning, P., Leavitt, J., Muscat, G., Ng, S.Y., and Kedes, L. (1987). "A human beta-actin expression vector system directs high-level accumulation of antisense transcripts". <i>Proc. Natl. Acad. USA.</i> 84, 4831-4835.	
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/S.M.N./	AW	Hall, A.K., and Rutishauser, U. (1987). "Visualization of neural cell adhesion molecule by electron microscopy". <i>J. Cell Biol.</i> 104, 1579-1586.
	AX	Hunter, I., Sawa, H., Edlund, M., and Öbrink, B. (1996). "Evidence for regulated dimerization of cell-cell adhesion molecule (C-CAM) in epithelial cells". <i>Biochem. J.</i> 320, 847-853.
	AY	Janin, J. (1997). "Specific versus non-specific contacts in protein crystals". <i>Nature Struct. Biol.</i> 4, 973-974.
	AZ	Jensen, P.H., Soroka, V., Thomsen, N.K., Ralets, I., Berezin, V., Bock, E., and Poulsen, F.M. (1999). "Structure and interactions of NCAM modules 1 and 2 - basic elements in neural cell adhesion". <i>Nature Struct. Biol.</i> 6, 486-493.
	BA	Jones, T.A., Zou, J.Y., Cowan, S.W., and Kjeldgaard, M. (1991). "Improved methods for building protein models in electron density maps and the location of errors in these models". <i>Acta Crystallogr. A</i> 47, 110-119.
	BB	Jones, E.Y., Davis, S.J., Williams, A.F., Harlos, K., and Stuart, D.I. (1992). "Crystal structure at 2.8 Å resolution of a soluble form of the cell adhesion molecule CD2". <i>Nature</i> 360, 232-239.
	BC	Jones, S., and Thornton, J.M. (1996). "Principles of protein-protein interactions". <i>Proc. Natl. Acad. Sci. USA</i> 93, 13-20.
	BD	Jørgensen, O.S., and Bock, E. (1974). "Brain-specific synaptosomal membrane proteins demonstrated by crossed immunoelectrophoresis". <i>J. Neurochem.</i> 23, 879-880.
	BE	Kallapur, S.G., and Akeson, R.A. (1992). "The neural cell adhesion molecule (NCAM) heparin binding domain binds to cell surface heparan sulfate proteoglycans". <i>J. Neurosci. Res.</i> 33, 538-548.
	BF	Kasper, C., Stahlhut, M., Berezin, V., Maar, T.E., Edvardsen, K., Kiselyov, V.V., Soroka, V., and Bock, E. (1996). "Functional characterization of NCAM fibronectin type III domains: demonstration of modulatory effects of the proline-rich sequence encoded by alternatively spliced exons a and AAG". <i>J. Neurosci. Res.</i> 46, 173-186.
	BG	Kasper, C., Rasmussen, H., Kastrop, J.S., Ikemizu, S., Jones, E.Y., Berezin, V., Bock, E., and Larsen, I.K. (2000). "Structural basis of cell-cell adhesion by NCAM". <i>Nature Struct. Biol.</i> 7, 389-393.
	BH	Kiselyov, V.V., Berezin, V., Maar, T., Soroka, V., Edvardsen, K., Schousboe, A., and Bock, E. (1997). "The first Immunoglobulin-like NCAM domain is involved in both double reciprocal interaction with the second Immunoglobulin-like NCAM domain and in heparin binding". <i>J. Biol. Chem.</i> 272, 10125-10134.

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/S.M.N./	BI	Kleywegt, G.J., and Jones, T.A. (1996). "Phi/psi-chology: Ramachandran revisited". Structure 4, 1395-1400.	
	BJ	Kolkova, K., Novitskaya, V., Pedersen, N., Berezin, V., and Bock, E. (2000). "Neural cell adhesion molecule-stimulated neurite outgrowth depends on activation of protein kinase C and the Ras-mitogen-activated protein kinase pathway". J. Neurosci. 20, 2238-2246.	
	BK	Kostrewa, D., Brockhaus, M., D'Arcy, A., Dale, G.E., Nelboeck, P., Schmid, G., Mueller, F., Bazzoni, G., Dejana, E., Bartfai, T., Winkler, F.K., and Hennig, M. (2001). "X-ray structure of junctional adhesion molecule: structural basis for homophilic adhesion via a novel dimerization motif". EMBO J. 20, 4391-4398.	
	BL	Kraulis, P.J. (1991). "MOLSCRIPT: a program to produce both detailed and schematic plots of protein structures". J. Appl. Cryst. 24, 946-950.	
	BM	Kristiansen, L.V., Marques, F.A., Soroka, V., Rønn, L.C., Kiselyov, V., Pedersen, N., Berezin, V., and Bock E. (1999). "Homophilic NCAM interactions interfere with L1 stimulated neurite outgrowth". FEBS Lett. 464, 30-34.	
	BN	Leahy, D.J., Aukhil, I., and Erickson, H.P. (1996). "2.0 Å crystal structure of a four-domain segment of human fibronectin encompassing the RGD loop and synergy region". Cell 84, 155-164.	
	BO	Laskowski, R.A., MacArthur, M.W., Moss, D.S., and Thornton, J.M. (1993). "PROCHECK: a program to check the stereochemical quality of protein structures". J. Appl. Cryst. 26, 283-291.	
	BP	Merritt, E.A. and Bacon, D.J. (1997). "Raster3D Photorealistic Molecular Graphics". Methods Enzymol. 277, 505-524.	
	BQ	Milev, P., Friedlander, D.R., Sakurai, T., Karthikeyan, L., Fiad, M., Margolis, R.K., Grummet, M., and Margolis, R.U. (1994). "Interactions of the chondroitin sulfate proteoglycan phosphacan, the extracellular domain of a receptor-type protein tyrosine phosphatase, with neurons, glia, and neural cell adhesion molecules". J. Cell Biol. 127, 1703-1715.	
	BR	Miyahara, M., Nakanishi, H., Takahashi, K., Satoh-Horikawa, K., Tachibana, K., and Takai, Y. (2000). "Interaction of nectin with afadin is necessary for its clustering at cell-cell contact sites but not for its cis dimerization or trans interactions". J. Biol. Chem. 275, 613-618.	
	BS	Muller, D., Wang, C., Skibo, G., Toni, N., Cremer, H., Calaora, V., Rougon, G., and Kiss, J.Z. (1996). "PSA-NCAM is required for activity-induced synaptic plasticity". Neuron 3, 413-422.	
	BT	Navaza, J., and Saludjian, P. (1997). "AmoRe: An automated molecular replacement program package". Methods Enzymol. 276, 581-594.	
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/S.M.N./	BU	Nybroe, O., Moran, N., and Bock, E. (1989). "Equilibrium binding analysis of neural cell adhesion molecule binding to heparin". J. Neurochem. 52, 1947-1949.	
	BV	Otwinski, Z., and Minor, W. (1997). "Processing of X-ray diffraction data collected in oscillation mode". Methods Enzymol. 276, 307-326.	
	BW	Perrakis, A., Morris, R., and Lamzin, V.S. (1999). "Automated protein model building combined with iterative structure refinement". Nature Struct. Biol. 6, 458-463.	
	BX	Probstmeier, R., Kuhn, K., and Schachner, M. (1989). "Binding properties of the neural cell adhesion molecule to different components of the extracellular matrix". J. Neurochem. 53, 1794-1801.	
	BY	Ranheim, T.S., Edelman, G.M., and Cunningham, B.A. (1996). "Homophilic adhesion mediated by the neural cell adhesion molecule involves multiple immunoglobulin domains". Proc. Natl. Acad. Sci. USA. 93, 4071-4075.	
	BZ	Rao, Y., Wu, X-F., Ganeply J., Rutishauser, Urs., and Siu, C-H. (1992). "Identification of a peptide sequence involved in homophilic binding in the neural cell adhesion molecule NCAM". J. Cell Biol. 118, 937-949.	
	CA	Rao, Y., Zhao, X., and Siu, C.H. (1994). "Mechanisms of homophilic binding mediated by the neural cell adhesion molecule NCAM. Evidence for isologous interaction". J. Biol. Chem. 269, 27540-27548.	
	CB	Rønn, L.C., Ralets, L., Hartz, B.P., Bech, M., Berezin, A., Berezin, V., Møller, A., and Bock, E. (2000). "A simple procedure for quantification of neurite outgrowth based on stereological principles". J. Neurosci. Meth. 100, 25-32.	
	CC	Sandig, M., Rao, Y., and Siu, C-H. (1994). "The homophilic binding site of the neural cell adhesion molecule NCAM is directly involved in promoting neurite outgrowth from cultured neural retinal cells". J. Biol. Chem. 269, 14841-14848.	
	CD	Shapiro, L., Fannon, A.M., Kwong, P.D., Thompson, A., Lehmann, M.S., Grubel, G., Legrand, J-F., Als-Nielsen, J., Colman, D.R., and Hendrickson, W.A. (1995). "Structural basis of cell-cell adhesion by cadherins. Nature 374, 327-337.	
	CE	Soroka, V., Kiryushko, D., Novitskaya, V., Rønn, L.C., Poulsen, F.M., Holm, A., Bock, E., and Berezin, V. (2002). Induction of neuronal differentiation by a peptide corresponding to the homophilic binding site of the second Ig module of NCAM". J. Biol. Chem. 277, 24676-24683.	
▼	CF	Su, X-D., Gastinel, L.N., Vaughn, D.E., Faye, I., Poon, P. and Bjorkman P.J. (1998). "Crystal structure of hemolin: A horseshoe shape with implications for homophilic adhesion". Science 281, 991-995.	
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Tomasiewicz, H., Ono, K., Yee, D., Thompson, C., Goridis, C., Rutishauser, U., and Magnuson, T. (1993). "Genetic deletion of a neural cell adhesion molecule variant (NCAM-180) produces defects in the central nervous system". *Neuron* 11, 1163-1174.

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Thomsen, N.K., Soroka, V., Jensen, P.H., Berezin, V., Bock, E., and Poulsen, F.M. (1996). "The three-dimensional structure of the first domain of neural cell adhesion molecule". *Nature Struct. Biol.* 3, 581-585.

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Wu, Y.Y., and Bradshaw, R.A. (1995). "PC12-E2 cells: a stable variant with altered responses to growth factor stimulation". *J. Cell. Physiol.* 164, 522-532.

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Wu, H., Kwong, P.D., and Hendrickson, W.A. (1997). "Dimeric association and segmental variability in the structure of human CD4". *Nature* 387, 527-530.

CK

Kasper, C., et al. "Extracellular modules of the cell adhesion molecules NCAM and L1", Database [HTTP://WWW-HASYLAB.DESY.DE/SCIENCE/ANNUAL\\_REPORTS/2002\\_REPORT/PART2/CONTRIB/72/7824](http://WWW-HASYLAB.DESY.DE/SCIENCE/ANNUAL_REPORTS/2002_REPORT/PART2/CONTRIB/72/7824).

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Huang, Z., et al. "Immunoglobulin Superfamily Proteins: Structure, Mechanisms, and Drug Discovery", *Biopoly.*, vol. 43, pp. 367-382, 1997.

CM

Rønn, L.C.B., et al. "Identification of a neuritogenic ligand of the neural cell adhesion molecule using a combinatorial library of synthetic peptides" *Nature Biotechnology*, Vol. 17, October 1999, 1000-1005.

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Soroka, V., et al. "Structure and Interactions of NCAM Ig1-2-3 suggest a Novel Zipper Mechanism for Homophilic Adhesion" *Structure*, Vol. 10, 1291-1301, October 2003.

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TAKEDA, et al. "E-Cadherin functions as a cis-dimer at the cell-cell adhesive interface in vivo"; *Nature Structural Biology*; Volume 6, Number 4, April 1999

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